BRUHAT BANGALORE MAHANAGARA PALIKE

BYATARAYANAPURA DIVISION

TEST REPORTS

Ward No-08

TEJUS CONSULTANTS
CONSULTING ENGINEERS AND DESIGNERS
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CIVIL XPERTS
ISO 9001:2015
NSULTANTS & TESTING CENTER

Highway / Building Material Testing | Structural Strengthening Solutions
Quality Control / Assurance / Audit | Proof Checking (Structural Designs & Drawings)
Soil Stabilization and Shoring Services | Non - Destructive Testing

NABL ACCREDITED AS PER ISO/IEC 17025:2005

Job No.: CECTCP/RC/QC/2018-19

Date: 01.11.2018

TEST RESULTS OF PHYSICAL PROPERTIES OF REINFORCEMENT STEEL

Client : **Bruhat Bangalore Mahanagar Palike**

Agency : **M/s.Ram and Company**

Name of Work : Comprehensive Development for Roads and Drains In Ward No. 7 And 8 Under CMC & TMC Grants, Kodigehalli Sub-Division, Yelahanka Zone, Byatarayanapura Division.

Sample Identification : 8mm, 10mm TMT Bars

Technical Reference : IS 1786:2008, IS 1608:2005, IS 1599:1985 (Reaffirmed 2006)

Date of test: : 01.11.2018

Sl.No	Nominal size (dia in mm)	Mass per metre (kg/metre)	TENSILE STRENGTH		
			0.20 % proof stress/ yield stress ($N/mm^{2)}$	Tensile strength ($N/mm^{2)}$	Elongation, percent on gauge length
1	8	0.399	535	558	18
2	10	0.617	556	580	19

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 15 days from the date of testing.

For Civil Experts

Authorised Sign

M/S. RAM & COMPANY

Assistant Executive Engineer
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

174, Sri Ranga Complex, Amrutha Nagar Main Road, New Bank Colony, Konanakunte, Bangalore - 560 062.

TEJUS
CONSULTANTS

TEST REPORT

nts	Bruhat Bangalore Mahanagara Palike
ject	Comprehensive Development for Roads and Drains In Ward No. 7 And 8 Under CMC & TMC Grants, Kodigehalli Sub-Division, Yelahanka Zone, Byatarayanapura Division.
nsultants	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
ntractor	M/S Ram and Company, Engineers & Contractors.
tal Weight in gm:	3000

SIEVE ANALYSIS

pe of Material	40 mm down size			Proposed Use	Drain
mple Location	at Site			Date of Sampling	02/11/2018
				Date of Testing	02/11/2018
IS Sieve Size	Weight Retained in gm	Cum. Weight Retained in gm	Cumulative Weight Retained in %	Cumulative Weight Passing in %	Specific Limits as per IS 383-1970 (RA-2007) % of Passing For Graded Aggregate of Nominal Size
80.00mm	0	0	0.00	100.00	100
63.00mm	0	0	0.00	100.00	-
40.00mm	90	90	3.00	97.00	95-100
20.00mm	1526	1616	53.87	46.13	30-70
10.00mm	795	2411	80.37	19.63	10-35
4.75mm	480	2891	96.37	3.63	0-5
Pan	109	3000	100.00	0.00	

Remarks : Satisfactory / Not Satisfactory

Consultant's Representative

TEJUS CONSULTANTS

M/S. RAM & COMPANY

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

TEJUS
CONSULTANTS

TEST REPORT

Clients	BRUHAT BENGALORE MAHANAGARA PALIKE
Project	Comprehensive Development for Roads and Drains In Ward No. 7 And 8 Under CMC & TMC Grants, Kodigehalli Sub-Division, Yelahanka Zone, Byatarayanapura Division.
Consultants	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	M/S Ram and Company, Engineers & Contractors.

SPECIFIC GRAVITY AND WATER ABSORPTION
FINE AGGREGATE (IS-2386-PART-3)

Type of Material	Sand/M sand	**Proposed Use**	Drain
Location/Source	At Plant/site	**Date of Sampling**	02/11/2018
Period of Soaking	24 hours	**Date of Testing**	02/11/2018

Sl. No.	Test Property	TRIAL - 1	TRIAL - 2	TRIAL - 3	Average
A	Weight of sturated surface dry sample gm.	670	648	668	
B	Weight of oven - dry sample gm.	660	638	658	
C	Weight of Pycnometer Filled with water gm	1275	1275	1275	
D	Weight of Pycnometer + sample + water gm	1698	1685	1695	
E	Bulk specific gravity $\frac{B}{(C+A-D)}$	2.672	2.681	2.653	**2.669**
G	Absorption (%) $\frac{(A-B)*100}{B}$	1.515	1.567	1.520	**1.534**

For M/s RAM & COMPANY

Consultant's Representative

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

TEJUS
CONSULTANTS

TEST REPORT

Clients	Bruhat Bangalore Mahanagara Palike
Project	Comprehensive Development for Roads and Drains In Ward No. 7 And 8 Under CMC & TMC Grants, Kodigehalli Sub-Division, Yelahanka Zone, Byatarayanapura Division.
Consultants	Tejus Consultants, Bangalore
Contractor	M/S Ram and Company, Engineers & Contractors.

SIEVE ANALYSIS

Total Weight:	**3000**	gms			
Type of Material	**Fine aggregate (River Sand/M sand)**		**Proposed Use**	Drain	
Sample Location	At Plant/site		**Date of Sampling**	02/11/2018	
			Date of Testing	02/11/2018	
IS Sieve Size	**Weight Retained**	**Cum. Weight Retained**	**Cum. % Retained**	**Cum. % Passing**	**Spec. Limit (%) Passing (Zone-II)**
10.00 mm	0	0	0	100.00	**100**
4.75 mm	265	265	8.83	91.17	**90 - 100**
2.36 mm	280	545	18.17	81.83	**75 - 100**
1.18 mm	520	1065	35.50	64.50	**55 - 90**
0.600 mm	560	1625	54.17	45.83	**35 -59**
0.300 mm	615	2240	74.67	25.33	**8-30**
0.150 mm	520	2760	92.00	8.00	**0 - 10**
Pan	240	3000			**-**

Remarks : Satisfactory / Not Satisfactory

Consultant's Representative

Assistant Executive Engineer
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

TEJUS
CONSULTANTS

Test Report on Cement

Project	Comprehensive Development for Roads and Drains In Ward No. 7 And 8 Under CMC & TMC Grants, Kodigehalli Sub-Division, Yelahanka Zone, Byatarayanapura Division.
Client	Bruhat Bangalore Mahanagar Palike
Consultant	TEJUS CONSULTANTS
Contractor	M/S Ram and Company, Engineers & Contractors.
Sample ID	Cement
Date of Sample Tested	02/11/2018
Sample Supplied By	Agency

Sl.No.	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 12269-1987
1	a) Initial Setting Time	IS-4031 (Part-5)	39 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part-5)	340 Minutes	Not More than 600 Minutes
2	Soundness	IS-4031 (Part-3) By the Le-Chatelier method	4 mm	Not More than 10 mm
3	Standard Consistency	IS-4031 (Part-4)	28.00%	

Consultant's Representative

TEJUS CONSULTANTS

RAM & COMPANY

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

TEJUS
CONSULTANTS

TEST REPORT

Clients	Bruhat Bangalore Mahanagara Palike	
Project	Comprehensive Development for Roads and Drains In Ward No. 7 And 8 Under CMC & TMC Grants, Kodigehalli Sub-Division, Yelahanka Zone, Byatarayanapura Division.	
Consultants	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore	
Contractor	M/S Ram and Company, Engineers & Contractors	
Total Weight:	10000	gms

SIEVE ANALYSIS

Type of Material	**12.5 mm down size**		**Proposed Use**		
Sample Location	Plant/site		**Date of Sampling**	12/11/2018	
			Date of Testing	12/11/2018	
IS Sieve Size (in mm)	**Weight Retained**	**Cum. Weight Retained**	**Cum. % Retained**	**Cum. % Passing**	**Spec. Limit (%) Passing**
20.0	0	0	0	100	100
12.5	572	572	5.72	94.28	90-100
10.0	2269	2841	28.41	71.59	40-85
4.75	6478	9319	93.19	6.81	0-10
Pan	681	10000			

Remarks :	Satisfactory / Not Satisfactory

TEJUS CONSULTANTS

Consultant's Representative

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

TEJUS
CONSULTANTS

TEST REPORT

Clients	Bruhat Bangalore Mahanagara Palike	
Project	Comprehensive Development for Roads and Drains In Ward No. 7 And 8 Under CMC & TMC Grants, Kodigehalli Sub-Division, Yelahanka Zone, Byatarayanapura Division.	
Consultants	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore	
Contractor	M/S Ram and Company, Engineers & Contractors.	
Total Weight:	10000	gms

SIEVE ANALYSIS

Type of Material	20 mm down size		**Proposed Use**	**Concrete**	
Sample Location	At Plant		**Date of Sampling**	12/11/2018	
			Date of Testing	12/11/2018	
IS Sieve Size	**Weight Retained**	**Cum. Weight Retained**	**Cum. % Retained**	**Cum. % Passing**	**Spec. Limit (%) Passing**
40.00 mm	0	0	0	100	**100**
20.00 mm	265	265	2.65	97.35	**95 - 100**
10.00 mm	4895	5160	51.60	48.40	**25 - 55**
4.75 mm	4125	9285	92.85	7.15	**0 - 10**
Pan	715	10000			

Remarks : Satisfactory / Not Satisfactory

Consultant's Representative

M/S. RAM & COMPANY

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

TEJUS
CONSULTANTS

TEST REPORT

Clients	BRUHAT BENGALORE MAHANAGARA PALIKE
Project	Comprehensive Development for Roads and Drains In Ward No. 7 And 8 Under CMC & TMC Grants, Kodigehalli Sub-Division, Yelahanka Zone, Byatarayanapura Division.
Consultants	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	M/S Ram and Company, Engineers & Contractors.

SPECIFIC GRAVITY AND WATER ABSORPTION
FINE AGGREGATE (IS-2386-PART-3)

Type of Material	**Sand/M sand**	**Proposed Use**	Drain
Location/Source	**At Plant/site**	**Date of Sampling**	12/11/2018
Period of Soaking	**24 hours**	**Date of Testing**	12/11/2018

Sl. No.	Test Property		TRIAL - 1	TRIAL - 2	TRIAL - 3	Average
A	Weight of sturated surface dry sample gm.		670	648	668	
B	Weight of oven - dry sample gm.		660	638	658	
C	Weight of Pycnometer Filled with water gm		1275	1275	1275	
D	Weight of Pycnometer + sample + water gm		1698	1685	1695	
E	Bulk specific gravity	B	2.672	2.681	2.653	**2.669**
		(C + A - D)				
G	Absorption (%)	(A - B) *100	1.515	1.567	1.520	**1.534**
		B				

M.S. RAM & COMPANY

TEJUS CONSULTANTS PVT. LTD.

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

TEJUS
CONSULTANTS

TEST REPORT					
Clients	Bruhat Bangalore Mahanagara Palike				
Project	Comprehensive Development for Roads and Drains In Ward No. 7 And 8 Under CMC & TMC Grants, Kodigehalli Sub-Division, Yelahanka Zone, Byatarayanapura Division.				
Consultants	Tejus Consultants, Bangalore				
Contractor	M/S Ram and Company, Engineers & Contractors.				
SIEVE ANALYSIS					
Total Weight:	**3000** gms				
Type of Materia	**Fine aggregate (River Sand/M sand)**		**Proposed Use**	Drain	
Sample Location	At Plant/site		**Date of Sampling**	12/11/2018	
			Date of Testing	12/11/2018	
IS Sieve Size	**Weight Retained**	**Cum. Weight Retained**	**Cum. % Retained**	**Cum. % Passing**	**Spec. Limit (%) Passing (Zone-II)**
10.00 mm	0	0	0	100.00	**100**
4.75 mm	265	265	8.83	91.17	**90 - 100**
2.36 mm	280	545	18.17	81.83	**75 - 100**
1.18 mm	520	1065	35.50	64.50	**55 - 90**
0.600 mm	560	1625	54.17	45.83	**35 -59**
0.300 mm	615	2240	74.67	25.33	**8-30**
0.150 mm	520	2760	92.00	8.00	**0 - 10**
Pan	240	3000			**-**
Remarks :	✓ Satisfactory / Not Satisfactory				

Consultant's Representative

TEJUS CONSULTANTS

RAM & COMPANY

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

TEJUS
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Test Report on Cement

Project	Comprehensive Development for Roads and Drains In Ward No. 7 And 8 Under CMC & TMC Grants, Kodigehalli Sub-Division, Yelahanka Zone, Byatarayanapura Division.
Client	Bruhat Bangalore Mahanagar Palike
Consultant	TEJUS CONSULTANTS
Contractor	M/S Ram and Company, Engineers & Contractors.
Sample ID	Cement
Date of Sample Tested	12/11/2018
Sample Supplied By	Agency

Sl.No.	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 12269-1987
1	a) Initial Setting Time	IS-4031 (Part-5)	36 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part-5)	354 Minutes	Not More than 600 Minutes
2	Soundness	IS-4031 (Part-3) By the Le-Chatelier method	5 mm	Not More than 10 mm
3	Standard Consistency	IS-4031 (Part-4)	28.00%	

Consultant Representative

TEJUS CONSULTANTS

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

TEJUS
CONSULTANTS

Test report on Compressive strength of concrete cubes

Project	Comprehensive Development for Roads and Drains In Ward No. 7 And 8 Under CMC & TMC Grants, Kodigehalli Sub-Division, Yelahanka Zone, Byatarayanapura Division.
Client	Bruhat Bangalore Mahanagar Palike
Consultant	TEJUS CONSULTANTS
Contractor	M/S Ram and Company, Engineers & Contractors.
Location:	Cement
Grade of concrete:	M20
Size of cube:	150x150x150 mm
Reference IS code:	IS:516-1959

Sl.No.	Date of Casting	Date of testing	Age of Test	Weight of Cube	Area of Cube	Failure load	Compressive strength	Avg. Compressive strength
				Kg	mm^2	KN	N/mm^2	N/mm^2
1	12/11/2018	19/11/18	7 days	8.822	22500	297	13.20	13.24
2	12/11/2018	19/11/18	7 days	8.875	22500	299	13.29	
3	12/11/2018	19/11/18	7 days	8.812	22500	298	13.24	

Consultant Representative

TEJUS CONSULTANTS

RAM & COMPANY

Assistant Executive Engineer
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

TEJUS
CONSULTANTS

Test report on Compressive strength of concrete cubes

Project	Improvments to Roads and Drains at Kodigehalli villege, Tatanagar and Surrounding Areas in Ward No 08 Kodigehalli, Kodigehalli Sub Division
Client	Bruhat Bangalore Mahanagar Palike
Consultant	TEJUS CONSULTANTS
Contractor	M/S Ram and Company, Engineers & Contractors.
Location:	Cement
Grade of concrete:	M20
Size of cube:	150x150x150 mm
Reference IS code:	IS:516-1959

Sl.No.	Date of Casting	Date of testing	Age of Test	Weight of Cube	Area of Cube	Failure load	Compressive strength	Avg. Compressive strength
				Kg	mm^2	KN	N/mm^2	N/mm^2
1	12/11/2018	03/12/2018	28 days	8.658	22500	452	20.09	20.25
2	12/11/2018	03/12/2018	28 days	8.762	22500	455	20.22	
3	12/11/2018	03/12/2018	28 days	8.555	22500	460	20.44	

Consultant Representative

Assistant Executive Engineer.
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

TEJUS
CONSULTANTS

Project	Comprehensive Development for Roads and Drains In Ward No. 7 And 8 Under CMC & TMC Grants, Kodigehalli Sub-Division, Yelahanka Zone, Byatarayanapura Division.
Client	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	M/s Tejus Consultants
Contractor	M/S Ram and Company, Engineers & Contractors

AGGREGATE IMPACT VALUE
(IS: 2386 Part - 4)

Proposed Use	BC	**Date of Sampling**	**07/12/2018**
Sample Location	At plant	**Date of Testing**	**07/12/2018**

Sl. No.	Description		Test No. 1	Test No. 2	Test No. 3	Spec Limit (%)
1	Wt. of stone pieces (dry) passing IS Sieve 12.5mm but retained in IS sieve 10mm (gm)	(Wa)	367.00	363.00	385.00	
2	Wt. of the fraction retained in IS sieve 2.36mm after the impact test (gm)	(Wb)	285.00	285.00	301.00	
3	Wt. of the fraction passed in IS sieve 2.36mm after the impact test (gm)	(Wc)	82.00	78.00	84.00	
4	Aggregate Impact Value (%)	(Wc/Wa)* 100	22.34	21.49	21.82	
5	Average Aggregate impact value	(%)	21.88			Max - 30 %

Remarks : Satisfactory / Not Satisfactory

Consultant's Representative

TEJUS CONSULTANTS

Assistant Executive Engineer.
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

TEJUS
CONSULTANTS

Project	Comprehensive Development for Roads and Drains In Ward No. 7 And 8 Under CMC & TMC Grants, Kodigehalli Sub-Division, Yelahanka Zone, Byatarayanapura Division.
Client	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	M/s Tejus Consultants
Contractor	M/S Ram and Company, Engineers & Contractors

FLAKINESS AND ELONGATION INDICES (IS 2386, PART 1)

Type of Material	BC		**Proposed Use**	**BC**
Sample Location	At plant		**Date of Sampling**	**07/12/2018**
			Date of Testing	**07/12/2018**

Size of aggregate		**Flakiness Index**		**Elongation Index**	
Passing through IS sieve, mm	**Retained on IS sieve, mm**	**Total wt. of aggregate retained on sieves (A) gms.**	**Wt. of aggregate passing from Flakiness gauge (B) gms**	**Wt. of aggregate retained on Flakiness gauge (C) gms**	**Wt. of aggregate retained on Elongation gauge after retained on Flakiness gauge(D)gms**
63.0	50.0	0	0	0	0
50.0	40.0	0	0	0	0
40.0	31.5	0	0	0	0
31.5	25.0	0	0	0	0
25.0	20.0	0	0	0	0
20.0	16.0	955	110	845	85
16.0	12.5	1235	99	1136	110
12.5	10.0	665	82	583	72
10.0	6.3	540	69	471	42
Total		**3395**	**360**	**3035**	**309**

Note: Minimum 200 Pcs should be taken on each fraction of test

Flakiness Index(%):	10.60
Elongation Index(%):	10.18
Combined FI+EL (%)	20.79

Consultant Representative

M/S. RAM & COMPANY

Assistant Executive Engineer
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

Name of Work	:	Comprehensive Development for Roads and Drains In Ward No. 7 And 8 Under CMC & TMC Grants, Kodigehalli Sub-Division, Yelahanka Zone, Byatarayanapura Division.
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/S Ram and Company, Engineers & Contractors
Date of Testing	:	07/12/2018
Type of Mix	:	BC
Sample I/D	:	BC1

GRADATION FOR BC
(As per MORT&H 500-17,Grading-2)

Sample Location:	At plant	Date of Sampling:	07/12/2018
		Date of testing:	07/12/2018
Type of material & Purpose:	BC	Oven Dry Wt.(gms):	1200.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
19.00	0	0	0.00	100.00	100.00
13.20	60	60.0	5.00	95.00	90 - 100
9.50	120	180.0	15.00	85.00	70 - 88
4.75	245	425.0	35.42	64.58	53 - 71
2.360	135	560.0	46.67	53.33	42 - 58
1.180	115	675.0	56.25	43.75	34 - 48
0.600	90	765.0	63.75	36.25	26 - 38
0.300	120	885.0	73.75	26.25	18 - 28
0.150	100	985.0	82.08	17.92	12 - 20
0.075	119	1104.0	92.00	8.00	4 - 10
Pan	96.0				
Total	1200.0				

Consultant's Representative

M/s. RAM & COMPANY

Assistant Executive Engineer
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

TEJUS
CONSULTANTS

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX

Name of Work	:	Comprehensive Development for Roads and Drains In Ward No. 7 And 8 Under CMC & TMC Grants, Kodigehalli Sub-Division, Yelahanka Zone, Byatarayanapura Division.
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/S Ram and Company, Engineers & Contractors
Date of Testing	:	11-12-18
Type of Mix	:	BC
Sample I/D	:	BC2

DETERMINATION OF BITUMEN CONTENT

Description	Trail 1	Trail 2
1. Weight of Mixture before extraction, g	960	885
2. Weight of Mixture after extraction, g	905	840
3. Weight of Bitumen	55	45
4. Weight of filter paper before extraction, g	4.00	4.00
5. Weight of filter paper after extraction, g	5.00	5.00
6. Weight of fines, g	1.00	1.00
7. Weight of Bitumen & fines	52.00	48.00
8. Bitumen content in %	5.42	5.42
9. Average Bitumen content in %	**5.42**	
10. Minimum Bitumen content in %	**5.40**	

GRADATION FOR BC AFTER EXTRACTION

(As per MORT&H 500-17,Grading-2)

Sample Location:	At site	**Date of Sampling:**	11-12-18	
		Date of testing:	11-12-18	
Type of material & Purpose:	BC	**Oven Dry Wt.(gms):**	905.0	

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
19.00	0	0	0.00	100.00	100.00
13.20	70	70.0	7.73	92.27	90 - 100
9.50	70	140.0	15.47	84.53	70 - 88
4.75	155	295.0	32.60	67.40	53 - 71
2.360	135	430.0	47.51	52.49	42 - 58
1.180	70	500.0	55.25	44.75	34 - 48
0.600	94	594.0	65.64	34.36	26 - 38
0.300	100	694.0	76.69	23.31	18 - 28
0.150	80	774.0	85.52	14.48	12 - 20
0.075	70	844.0	93.26	6.74	4 - 10
Pan	61.0				
Total	905.0				

Consultant's Representative

Assistant Executive Engineer
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

TEJUS
CONSULTANTS

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX

Name of Work	:	Comprehensive Development for Roads and Drains In Ward No. 7 And 8 Under CMC & TMC Grants, Kodigehalli Sub-Division, Yelahanka Zone, Byatarayanapura Division.
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/S Ram and Company, Engineers & Contractors
Date of Testing	:	11-12-18
Type of Mix	:	BC
Sample I/D	:	BC1

DETERMINATION OF BITUMEN CONTENT

Description	Trail 1	Trail 2
1. Weight of Mixture before extraction, g	960	886
2. Weight of Mixture after extraction, g	905	835
3. Weight of Bitumen	55	51
4. Weight of filter paper before extraction, g	4.00	4.00
5. Weight of filter paper after extraction, g	5.00	5.00
6. Weight of fines, g	1.00	1.00
7. Weight of Bitumen & fines	52.00	48.00
8. Bitumen content in %	5.42	5.42
9. Average Bitumen content in %	**5.42**	
10. Minimum Bitumen content in %	**5.40**	

GRADATION FOR BC AFTER EXTRACTION

(As per MORT&H 500-17,Grading-2)

Sample Location:	At site	**Date of Sampling:**	11-12-18
		Date of testing:	11-12-18
Type of material & Purpose:	**BC**	**Oven Dry Wt.(gms):**	905.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
19.00	0	0	0.00	100.00	100.00
13.20	70	70.0	7.73	92.27	90 - 100
9.50	120	190.0	20.99	79.01	70 - 88
4.75	150	340.0	37.57	62.43	53 - 71
2.360	126	466.0	51.49	48.51	42 - 58
1.180	90	556.0	61.44	38.56	34 - 48
0.600	50	606.0	66.96	33.04	26 - 38
0.300	60	666.0	73.59	26.41	18 - 28
0.150	80	746.0	82.43	17.57	12 - 20
0.075	110	856.0	94.59	5.41	4 - 10
Pan	49.0				
Total	905.0				

Consultant's Representative

M/s. RAM & COMPANY

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

Name of Work	:	Comprehensive Development for Roads and Drains In Ward No. 7 And 8 Under CMC & TMC Grants, Kodigehalli Sub-Division, Yelahanka Zone, Byatarayanapura Division.
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/S Ram and Company, Engineers & Contractors
Date of Testing	:	11-12-18
Type of Mix	:	Tack coat
Sample I/D	:	1

DETERMINATION OF RATE OF SPREAD TACK COAT

Determination	**Unit**	**Test No**	
		1	**2**
Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
Area of Plate (a)	Sq.mtr	0.09	0.09
Initial Wt of empty Plate (b)	Kg	0.830	0.850
Final weight of plate after application of tack Coat (c)	Kg	0.853	0.873
Weight of tack Coat (d=c-b)	Kg	0.023	0.023
Rate of spread of tack coat	Kg/sq.m	0.256	0.256
Average	Kg/sq.m	0.256	
Specified Limit	Kg/sq.m	**0.250 Kg/sq.m**	

Consultant's Representative

Assistant Executive Engineer,
Kodigehalli Sub Division,
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Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	M/S Ram and Company, Engineers & Contractors
Date of Testing	:	11-12-18
Type of Mix	:	Tack coat
Sample I/D	:	1

DETERMINATION OF RATE OF SPREAD TACK COAT

Determination	Unit	Test No	
		1	2
Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
Area of Plate (a)	Sq.mtr	0.09	0.09
Initial Wt of empty Plate (b)	Kg	0.858	0.849
Final weight of plate after application of tack Coat (c)	Kg	0.881	0.872
Weight of tack Coat (d=c-b)	Kg	0.023	0.023
Rate of spread of tack coat	Kg/sq.m	0.256	0.256
Average	Kg/sq.m	0.256	
Specified Limit	Kg/sq.m	**0.250 Kg/sq.m**	

Consultant's Representative

M/s RAM & COMPANY

Assistant Executive Engineer,
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Yelahanka Zone, B.B.M.P.,
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